

US-PAT-NO: 4864390

DOCUMENT-IDENTIFIER: US 4864390 A

See image for Reexamination Certificate

TITLE: Display system with
equal path lengths

----- KWIC -----

Detailed Description Text - DETX (58):

Several techniques have been found according to the present invention to be usable to increase the collection efficiency from a light source by collecting light in two dimensions, rather than one. FIG. 19 shows an example of such a collection scheme in which a modified lamp/condenser configuration is utilized having two plane mirrors 84 and 85 placed between the inner and outer envelopes 80 and 89 of a metal halide light source 21. Three curved reflectors 81, 82 and 83 are placed outside of the lamp in a generally surrounding configuration. The purpose of this arrangement is to increase the collection efficiency of the system by collecting light that is emitted in both the .+-.X and .+-.Y directions, rather than just in the .+-.X

direction.

Detailed Description Text - DETX (61):

The plane mirrors 84 and 85 in FIG. 19 may be made from quartz or sapphire so that they can withstand the hot environment of the light source. The reflective surface of these mirrors may be a dichroic filter or a metallized layer. The curved reflectors 81, 82, and 83 could be cold mirrors to allow the infrared to escape from the system. The curved surfaces may be aspheric, spherical, elliptical, parabolic or segmented.

Detailed Description Text - DETX (64):

An alternative to this may be seen in FIG. 21b in which the collection efficiency of the illumination subsystem is also increased by collecting light from four sides of the light source 21. In this arrangement, a curved reflector 101 replaces the lens 95 and mirror 94 in FIG. 21a, while the curved reflector 102 replaces the lens 91 and mirror 92 in FIG. 21a. The reflectors 101 and 102 serve to focus an image of the light source 21 at the plane E at the center of the field lens 93. The reflectors 101 and 102 are aspheric in shape, and are tilted 22.5.degree. with respect to the Y and X axes

respectively so that is bent 45.degree.
upon reflection. The field lens 93
directs light rays emerging from the image
E onto the respective reflectors 101
and 102 depending on the direction of the
light travel.

Detailed Description Text - DETX (66):

A further embodiment may be seen by way
of FIG. 21c in which the
intermediate image at the plane E is not
formed. Instead the reflectors 101
and 102 are parabolic or aspheric in shape
with the axis along a 45.degree.
direction with respect to the Y and X axis
respectively and the light source 21
is at the focus. Light passes between
reflectors 101 and 102 in approximately
parallel beams, and is refocused onto
itself by either reflector. A field lens
is not used in this arrangement because no
intermediate image is formed.

Current US Cross Reference Classification -
CCXR (2):

348/756